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SEA (THREONI? (S) CARRIE? (S) EXPOR?) OR THRE

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L1 QUE (THREONI? (S) CARRIE? (S) EXPOR?) OR THRE

FILE 'USPATFULL, WPIDS, BIOSIS, PROMT, PASCAL, CAPLUS, IFIPAT, EMBASE, TOXCENTER, JICST-EPLUS, NLDB, BIOTECHDS, FEDRIP, GENBANK, MEDLINE' ENTERED AT 13:42:40 ON 11 FEB 2004

L2 2635 S (THREONI? (S) CARRIE? (S) EXPOR?) OR THRE

L3 1317 S L2 AND (PRODUC? OR EXCRET?)
L4 170 S L3 AND CORYN?
L5 112 DUP REM L4 (58 DUPLICATES REMOVED)
L6 84 S L3 AND CORYN? AND THRE

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 NEWS  4  DEC 08  INPADOC: Legal Status data reloaded
 NEWS  5  SEP 29  DISSABS now available on STN
 NEWS  6  OCT 10  PCTFULL: Two new display fields added
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 NEWS 11  DEC 08  IMS file names changed
 NEWS 12  DEC 09  Experimental property data collected by CAS now available
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 NEWS 13  DEC 09  STN Entry Date available for display in REGISTRY and CA/CAplus
 NEWS 14  DEC 17  DGENE: Two new display fields added
 NEWS 15  DEC 18  BIOTECHNO no longer updated
 NEWS 16  DEC 19  CROPU no longer updated; subscriber discount no longer
                  available
 NEWS 17  DEC 22  Additional INPI reactions and pre-1907 documents added to CAS
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 NEWS 18  DEC 22  IFIPAT/IFIUDB/IFICDB reloaded with new data and search fields
 NEWS 19  DEC 22  ABI-INFORM now available on STN
 NEWS 20  JAN 27  Source of Registration (SR) information in REGISTRY updated
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 NEWS 21  JAN 27  A new search aid, the Company Name Thesaurus, available in
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 NEWS 22  FEB 05  German (DE) application and patent publication number format
                  changes

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FULL ESTIMATED COST                                     0.42       0.42
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FIELD CODE - 'AND' OPERATOR ASSUMED 'THREONI? (S) CARRIE?'
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FIELD CODE - 'AND' OPERATOR ASSUMED 'CARRIE? (S) EXPOR?'
L2 2635 (THREONI? (S) CARRIE? (S) EXPOR?) OR THRE

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12 FILES SEARCHED...
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=> s l3 and coryn?
L4 170 L3 AND CORYN?

=> dup rem l4
DUPLICATE IS NOT AVAILABLE IN 'FEDRIP, GENBANK'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
PROCESSING COMPLETED FOR L4
L5 112 DUP REM L4 (58 DUPLICATES REMOVED)

=> d ti l5 1-112

L5 ANSWER 1 OF 112 USPATFULL on STN DUPLICATE 1
TI Process for the fermentative preparation of L-amino acids with amplification of the tkt gene

L5 ANSWER 2 OF 112 USPATFULL on STN DUPLICATE 2
TI Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using

coryneform bacteria

L5 ANSWER 3 OF 112 USPATFULL on STN
TI **Coryneform** bacteria which **produce** chemical compounds I

L5 ANSWER 4 OF 112 USPATFULL on STN
TI Process for the preparation of L-amino acids with amplification of the zwf gene

L5 ANSWER 5 OF 112 USPATFULL on STN
TI Process for the preparation of L-amino acids with amplification of the zwf gene

L5 ANSWER 6 OF 112 USPATFULL on STN
TI Methods and compositions comprising Renilla GFP

L5 ANSWER 7 OF 112 USPATFULL on STN
TI Process for the preparation of L-amino acids using a gene encoding 6-phosphogluconate dehydrogenase

L5 ANSWER 8 OF 112 USPATFULL on STN
TI Process for the **production** of L-amino acids using strains of the family enterobacteriaceae that contain an attenuated aceA gene

L5 ANSWER 9 OF 112 USPATFULL on STN
TI Process for the **production** of L-amino acids using strains of the family enterobacteriaceae that contain an attenuated dgsA gene

L5 ANSWER 10 OF 112 USPATFULL on STN
TI **Corynebacterium** glutamicum genes encoding metabolic pathway proteins

L5 ANSWER 11 OF 112 USPATFULL on STN
TI Process for the **production** of L-amino acids using strains of the family enterobacteriaceae that contain an attenuated fruR gene

L5 ANSWER 12 OF 112 USPATFULL on STN
TI Process for the preparation of L-amino acids using strains of the enterobacteiaceae family

L5 ANSWER 13 OF 112 USPATFULL on STN
TI Process for the fermentative preparation of L-amino acids using strains of the enterobacteriaceae family

L5 ANSWER 14 OF 112 IFIPAT COPYRIGHT 2004 IFI on STN
TI PROCESS FOR THE FERMENTATIVE PREPARATION OF L-AMINO ACIDS USING **CORYNEFORM** BACTERIA

L5 ANSWER 15 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 3
TI New ubiquitous translocators: Amino acid export by **Corynebacterium** glutamicum and Escherichia coli.

L5 ANSWER 16 OF 112 USPATFULL on STN DUPLICATE 4
TI New nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria

L5 ANSWER 17 OF 112 USPATFULL on STN DUPLICATE 5
TI Process for the fermentative preparation of L-threonine

L5 ANSWER 18 OF 112 USPATFULL on STN DUPLICATE 6
TI Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria

L5 ANSWER 19 OF 112 USPATFULL on STN DUPLICATE 7
TI New nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria

L5 ANSWER 20 OF 112 USPATFULL on STN DUPLICATE 8
TI Process for the fermentative preparation of L-amino acids using **coryneform** bacteria

L5 ANSWER 21 OF 112 USPATFULL on STN DUPLICATE 9
TI Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria

L5 ANSWER 22 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 10
TI Isolated polynucleotide from **Coryneform** bacteria, used for the fermentative **production** of L-amino acids, comprises a sequence coding for the miKE17 gene.

L5 ANSWER 23 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 11
TI New polynucleotide from **coryneform** bacteria coding for dep67 gene, where overexpression of the gene provides improved **production** of L-amino acids particularly L-lysine in **corynebacterium** glutamicum.

L5 ANSWER 24 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 12
TI Polynucleotides from **Coryneform** bacteria, coding for the enzymatic cobalt reducing gene **product** cobW, involved in the biosynthesis of L-amino acids (e.g. L-lysine).

L5 ANSWER 25 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 13
TI Isolated polynucleotide from **Coryneform** bacteria, used for the fermentative **production** of L-amino acids, comprises a sequence coding for the msiK gene.

L5 ANSWER 26 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 14
TI New deaD gene encoding polypeptide having activity of DNA/RNA helicase, useful in bacteria for the fermentative preparation of L-amino acids, particularly L-lysine, from glucose, molasses, starch, cellulose or ethanol.

L5 ANSWER 27 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 15
TI New truB gene encoding polypeptide having activity of tRNA pseudouridine 55 synthase, useful in bacteria for fermentative preparation of L-amino acids, particularly L-lysine, from glucose, molasses, starch or ethanol.

L5 ANSWER 28 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 16
TI Novel polynucleotide from **Coryneform** bacteria coding for PPGK gene, useful as hybridization probe for detecting DNA to isolate nucleic acids, polynucleotides or genes coding for transcription activator ppgK.

L5 ANSWER 29 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 17
TI Novel polynucleotide from **Coryneform** bacteria coding for thyA gene, useful as hybridization probe for detecting DNA to isolate nucleic acids, polynucleotides or genes coding for thymidilate synthase.

L5 ANSWER 30 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 18
TI New polynucleotide from **Coryneform** bacteria coding for C4-dicarboxylate transporter, useful for isolating nucleic acids, polynucleotides or genes which code for C4-dicarboxylate transporter gene.

L5 ANSWER 31 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 19
TI New ppsA gene of **Coryneform** bacteria, useful when overexpressed, for increasing fermentative **production** of L-amino acids, encodes a phosphoenol pyruvate synthase.

L5 ANSWER 32 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 20
TI New protein kinase B, pknB gene from **corynebacteria**, useful as hybridization probe and overexpression of which gene in **corynebacteria** is useful for **producing** L-amino acids, in particular L-lysine.

L5 ANSWER 33 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 21
TI Novel polynucleotide from **coryneform** bacteria coding for phosphotransferase system enzyme I, useful for isolating nucleic acids, polynucleotides or genes which code for phosphotransferase system enzyme I.

L5 ANSWER 34 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 22
TI New Atr61 gene of **Coryneform** bacteria, useful when overexpressed, for increasing fermentative **production** of L-amino acids, encodes an ABC transporter protein.

L5 ANSWER 35 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 23
TI New pknD gene of **Coryneform** bacteria, useful when overexpressed, for increasing fermentative **production** of L-amino acids, encodes a protein kinase D protein.

L5 ANSWER 36 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 24
TI Novel sahH gene from **coryneform** bacteria useful as probe to isolate genes coding for adenosyl homocysteinase, and overexpression of which gene in **coryneform** bacteria is useful for **producing** amino acids, e.g. L-lysine.

L5 ANSWER 37 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 25
TI New polynucleotide isolated from **coryneform** bacteria coding for the gap2 gene and a process for the fermentative preparation of amino acids using bacteria in which the gap2 gene is enhanced.

L5 ANSWER 38 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 26
TI New sigM gene from **coryneform** bacteria useful as probe to isolate genes which code for sigma factor M, and overexpression of which gene in **coryneform** bacteria is useful for **producing** amino acids, especially L-lysine.

L5 ANSWER 39 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 27
TI New sigH gene from **coryneform** bacteria useful as a probe to isolate genes which code for sigma factor H, and overexpression of which gene in **coryneform** bacteria is useful for **producing** amino acids, especially L-lysine.

L5 ANSWER 40 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 28
TI New dps gene of **coryneform** bacteria, useful when overexpressed, for increasing fermentative **production** of L-amino acids, encodes a DNA-protection protein.

L5 ANSWER 41 OF 112 USPATFULL on STN
TI Novel Polynucleotides

L5 ANSWER 42 OF 112 USPATFULL on STN
TI Method to monitor a fermentation process

L5 ANSWER 43 OF 112 USPATFULL on STN
TI Nucleotide sequences coding for the cysQ gene

L5 ANSWER 44 OF 112 USPATFULL on STN
TI STREPTOCOCCUS PNEUMONIAE POLYNUCLEOTIDES AND SEQUENCES

L5 ANSWER 45 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New isolated deformylase polypeptide encoding polynucleotide from **coryneform** bacteria which when present in attenuated form in L-lysine **producing** bacteria, results in increased fermentative **production** of L-lysine;
recombinant enzyme gene, vector expression in host cell, fermentation for L-amino acid **production**

L5 ANSWER 46 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI Polynucleotide sequence encoding ndkA gene useful for preparation of L-amino acids e.g. L-lysine, and as hybridization probes for discovering RNA, cDNA and DNA to isolate genes encoding nucleotide diphosphate kinase;
plasmid vector-mediated dihydrodipicolinate-synthase gene transfer and expression in Escherichia coli and DNA microarray and DNA chip for use in L-lysine and L-amino-acid preparation

L5 ANSWER 47 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New polynucleotides isolated from **coryneform** bacteria coding for the luxS gene and a process for the fermentative preparation of amino acids using bacteria in which the luxS gene are attenuated;
vector plasmid pCR2-mediated chrA gene transfer and expression in Escherichia coli, fermentation, DNA primer, DNA probe, DNA chip and DNA microarray for use in L-lysine and L-amino-acid preparation, medicine andpharmaceutical industries and as feedstuff and food-additive

L5 ANSWER 48 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New polynucleotides isolated from **coryneform** bacteria coding for the chrA gene and a process for the fermentative preparation of amino acids using bacteria in which the chrA gene are attenuated;
vector plasmid pCR2-mediated chrA gene transfer and expression in Escherichia coli, fermentation, DNA primer, DNA probe, DNA chip and DNA microarray for use in L-lysine and L-amino-acid preparation, medicine and pharmaceutical industries and as feedstuff and food-additive

L5 ANSWER 49 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI Novel polynucleotide from **Coryneform** bacteria coding for hisC2 gene, useful as hybridization probe for detecting DNA to isolate nucleic acids, polynucleotides or genes coding for transcription regulator hisC2;
vector-mediated gene transfer, expression in host cell and DNA probe for strain improvement, L-amino acid preparation, DNA microarray or DNA chip construction and RNA, cDNA or DNA detection

L5 ANSWER 50 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New polynucleotides isolated from **coryneform** bacteria coding for the clpC gene and a process for the fermentative preparation of amino acids using bacteria in which the clpC gene is attenuated;
vector-mediated gene transfer and expression in **Corynebacterium** glutamicum host cell for strain improvement and L-amino acid preparation

L5 ANSWER 51 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New polynucleotides isolated from **coryneform** bacteria coding for the gpmB gene and a process for the fermentative preparation of amino acids using bacteria in which the gpmB gene is enhanced;
vector-mediated gene transfer and expression in **Corynebacterium** glutamicum host cell for strain improvement and L-amino acid preparation

L5 ANSWER 52 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New polynucleotide sequence encoding the sigC gene useful for preparation of L-amino acids e.g. lysine, and as hybridization probes for discovering RNA, cDNA and DNA to isolate genes which code for sigma factor C;
L-amino acid **production** by fermentation of bacterium containing the sigma factor-C gene

L5 ANSWER 53 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI Novel polynucleotide from **Coryneform** bacteria coding for sigma

factor E gene, useful as hybridization probe for isolating nucleic acids, polynucleotides or genes which code for sigE;
Corynebacterium glutamicum strain improvement for increased L-amino acid **production** by fermentation

L5 ANSWER 54 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI Novel **Coryneform** bacteria polynucleotide sequence of ilvE gene which codes for transaminase E, the expression of which is enhanced, particularly over expressed, for fermentative preparation of L-leucine, L-valine;
recombinant transaminase-E **production** and gene transfer for strain improvement for L-leucine and L-valine **production** by fermentation

L5 ANSWER 55 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New L-lactate dehydrogenase gene from **coryneform** bacteria, useful, when overexpressed, for increasing fermentative **production** of L-amino acid;
vector-mediated gene transfer and expression in host cell for strain improvement and L-lysine preparation

L5 ANSWER 56 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New tmk gene of **Coryneform** bacteria, useful when suppressed, for increasing fermentative **production** of L-amino acids, encodes a thymidylate kinase;
L-lysine **production** by recombinant **Corynebacterium** glutamicum useful for food, medicine and pharmaceutical industry

L5 ANSWER 57 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New cysD, N, K, E and H genes from **coryneform** bacteria, useful, when over expressed, for increasing fermentative **production** of L-amino acids;
vector plasmid pEC-XK99E-mediated recombinant protein gene transfer and expression in Escherichia coli for use in L-amino acid preparation and medicine, pharmaceutical and food industries

L5 ANSWER 58 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI RodA genes from **coryneform** bacteria, useful, when overexpressed, for increasing fermentative **production** of L-amino acid, especially L-lysine;
vector plasmid pEC-XK99E-mediated recombinant protein gene transfer and expression in Escherichia coli for use in L-amino acid preparation and medicine, pharmaceutical and food industries

L5 ANSWER 59 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New ftsX gene from **coryneform** bacteria, useful, when over expressed, for increasing fermentative **production** of L-amino acid, especially L-lysine;
vector plasmid pEC-XK99E-mediated recombinant protein gene transfer and expression in Escherichia coli for use in L-amino acid preparation, medicine, pharmaceutical and food industries

L5 ANSWER 60 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New dep34 gene from **coryneform** bacteria, useful, when inactivated, for increasing fermentative **production** of L-amino acid, especially L-lysine;
plasmid-mediated inactivated mutant gene transfer and expression in **Corynebacterium** glutamicum for use in food and pharmaceutical industry

L5 ANSWER 61 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New menE gene of **coryneform** bacteria, useful when suppressed for increasing fermentative **production** of L-amino acids, encodes an O-succinylbenzoic acid CoA-ligase;
vector-mediated gene transfer and expression in host cell for strain improvement and L-lysine preparation

L5 ANSWER 62 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI Fermentative **production** of L-amino acids, especially lysine or valine, by fermenting **Coryneform** bacteria in which the nadA and/or nadC gene is weakened;

vector expression in bacterium host cell, fermentation and mutation for amino acid **production** and food

L5 ANSWER 63 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
TI New pepC gene of **Coryneform** bacteria, useful when suppressed, for increasing fermentative **production** of L-amino acids, encodes an aminopeptidase I;
vector-mediated gene transfer and expression in host cell for strain improvement and L-lysine preparation

L5 ANSWER 64 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 29
TI Identification of glyA (encoding serine hydroxymethyltransferase) and its use together with the exporter **ThrE** to increase L-threonine accumulation by **Corynebacterium** glutamicum.

L5 ANSWER 65 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 30
TI Influence of threonine exporters on threonine **production** in Escherichia coli.

L5 ANSWER 66 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 31
TI Preparing L-amino acids by fermenting **coryneform** bacteria transformed with the 6-phosphogluconate dehydrogenase gene is particularly useful to **produce** L-lysine and L-threonine.

L5 ANSWER 67 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 32
TI Preparation of L-amino acids, e.g. L-lysine, L-threonine or L-isoleucine, useful in animal nutrition or in human medicine, comprises fermenting L-amino acid-**producing coryneform** bacteria with amplification of the tkt gene.

L5 ANSWER 68 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 33
TI Nucleic acids encoding phosphoserine phosphatase and phosphoserine aminotransferase from **coryneform** bacteria useful to transform microorganisms for the microbial **production** of L-serine.

L5 ANSWER 69 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 34
TI New cloned **Corynebacterium** glutamicum **thrE** gene useful for **producing thrE**-overexpressing **coryneform** bacteria for **production** of L-threonine.

L5 ANSWER 70 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 35
TI Fermentative **production** of L-threonine, useful in animal nutrition, comprises culturing enterobacterium with increased **thrE** gene activity.

L5 ANSWER 71 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
TI Preparing L-amino acids by fermenting **coryneform** bacteria transformed with the glucose 6-phosphate dehydrogenase gene is particularly useful to **produce** L-lysine and L-threonine.

L5 ANSWER 72 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
TI New polynucleotides from **coryneform** bacteria, specifically **Corynebacterium**, useful for preparing L-amino acids, especially L-lysine, L-threonine, L-isoleucine and L-tryptophan, by amplifying tal gene.

L5 ANSWER 73 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Production** of L-amino acids by **coryneform** bacteria, useful e.g. in animal nutrition, by fermenting cells with reduced glyA (serine hydroxymethyltransferase) gene activity.

L5 ANSWER 74 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 36
TI The cell wall barrier of **Corynebacterium** glutamicum and amino

acid efflux.

L5 ANSWER 75 OF 112 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secretion and degradation of L-threonine in **Corynebacterium** glutamicum

L5 ANSWER 76 OF 112 USPATFULL on STN
TI Nucleotide and protein sequences of lats genes and methods based thereon

L5 ANSWER 77 OF 112 PASCAL COPYRIGHT 2004 INIST-CNRS. ALL RIGHTS RESERVED. on STN DUPLICATE 37
TIEN Threonine diffusion and threonine transport in **Corynebacterium** glutamicum and their role in threonine **production**

L5 ANSWER 78 OF 112 PASCAL COPYRIGHT 2004 INIST-CNRS. ALL RIGHTS RESERVED. on STN DUPLICATE 38
TIEN Metabolic design in amino acid **producing** bacterium **Corynebacterium** glutamicum

L5 ANSWER 79 OF 112 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN
TI Molecular aspects of lysine, threonine, and isoleucine biosynthesis in **Corynebacterium** glutamicum.

L5 ANSWER 80 OF 112 USPATFULL on STN
TI 2-oxy-4H-3,1-benzoxazin-4-ones and pharmaceutical use

L5 ANSWER 81 OF 112 USPATFULL on STN
TI Fermentative **production** of L-histidine

L5 ANSWER 82 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Deciphering the biology of Mycobacterium tuberculosis from the complete genome sequence
TITLE (TI): Re-annotation of the genome sequence of Mycobacterium tuberculosis H37Rv
TITLE (TI): Direct Submission

L5 ANSWER 83 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete **Corynebacterium** glutamicum ATCC 13032 genome sequence and its impact on the **production** of L-aspartate-derived amino acids and vitamins
TITLE (TI): Direct Submission

L5 ANSWER 84 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Deciphering the biology of Mycobacterium tuberculosis from the complete genome sequence
TITLE (TI): Re-annotation of the genome sequence of Mycobacterium tuberculosis H37Rv
TITLE (TI): Direct Submission

L5 ANSWER 85 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Deciphering the biology of Mycobacterium tuberculosis from the complete genome sequence
TITLE (TI): Re-annotation of the genome sequence of Mycobacterium tuberculosis H37Rv
TITLE (TI): Direct Submission

L5 ANSWER 86 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence and analysis of **Corynebacterium** diphtheriae NCTC13129
TITLE (TI): Direct Submission

L5 ANSWER 87 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence and analysis of

Corynebacterium diphtheriae NCTC13129
TITLE (TI): Direct Submission

L5 ANSWER 88 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Comparative analysis of the genome sequences of Bordetella pertussis, Bordetella parapertussis and Bordetella bronchiseptica
TITLE (TI): Direct Submission

L5 ANSWER 89 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Comparative analysis of the genome sequences of Bordetella pertussis, Bordetella parapertussis and Bordetella bronchiseptica
TITLE (TI): Direct Submission

L5 ANSWER 90 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence of Mycobacterium bovis
TITLE (TI): Direct Submission

L5 ANSWER 91 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence of Mycobacterium bovis
TITLE (TI): Direct Submission

L5 ANSWER 92 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence of Mycobacterium bovis
TITLE (TI): Direct Submission

L5 ANSWER 93 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The complete genome sequence of Mycobacterium bovis
TITLE (TI): Direct Submission

L5 ANSWER 94 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Sequencing and analysis of the genome of the Whipple's disease bacterium Tropheryma whipplei
TITLE (TI): Direct Submission

L5 ANSWER 95 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2)
TITLE (TI): Direct Submission

L5 ANSWER 96 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2)
TITLE (TI): Direct Submission

L5 ANSWER 97 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2)
TITLE (TI): Direct Submission

L5 ANSWER 98 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2)
TITLE (TI): Direct Submission

L5 ANSWER 99 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2)

TITLE (TI): Direct Submission

L5 ANSWER 100 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria

L5 ANSWER 101 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria

L5 ANSWER 102 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Novel nucleotide sequence encoding **thrE** and process for the enzymatic **production** of L-threonine with the use of **coryneform**

L5 ANSWER 103 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Novel nucleotide sequence encoding **thrE** and process for the enzymatic **production** of L-threonine with the use of **coryneform**

L5 ANSWER 104 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genomic sequence of **Corynebacterium** glutamicum ATCC 13032
TITLE (TI): Direct Submission

L5 ANSWER 105 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genomic sequence of **Corynebacterium** glutamicum ATCC 13032
TITLE (TI): Direct Submission

L5 ANSWER 106 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Complete genomic sequence of **Corynebacterium** glutamicum ATCC 13032
TITLE (TI): Direct Submission

L5 ANSWER 107 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Identification of glyA (Encoding Serine Hydroxymethyltransferase) and Its Use Together with the Exporter **ThrE** To Increase L-Threonine Accumulation by **Corynebacterium** glutamicum
TITLE (TI): Direct Submission

L5 ANSWER 108 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): Genome sequence of Yersinia pestis, the causative agent of plague
TITLE (TI): Direct Submission

L5 ANSWER 109 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): L-threonine export: use of peptides to identify a new translocator from **Corynebacterium** glutamicum
TITLE (TI): Direct Submission

L5 ANSWER 110 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The genome sequence of the thermoacidophilic scavenger Thermoplasma acidophilum
TITLE (TI): Direct Submission

L5 ANSWER 111 OF 112 GENBANK.RTM. COPYRIGHT 2004 on STN

TITLE (TI): The genome sequence of the food-borne pathogen Campylobacter jejuni reveals hypervariable sequences
TITLE (TI): Direct Submission

L5 ANSWER 112 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
TI Simultaneous microbiological prodn of l-**thre**.

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L6 84 L3 AND CORYN? AND THRE

=> d ibib abs l5 1-5, 10, 15-18, 20, 45, 64 65 66 69-70, 74-75, 77, 79

L5 ANSWER 1 OF 112 USPATFULL on STN DUPLICATE 1
ACCESSION NUMBER: 2003:159401 USPATFULL
TITLE: Process for the fermentative preparation of L-amino acids with amplification of the tkt gene
INVENTOR(S): Burke, Kevin, Newcastle, IRELAND
Dunican, L. K., Bushy Park, IRELAND
Duncian, Rita, Galway, IRELAND LR
McCormack, Ashling, Athlone, IRELAND
Stapleton, Cliona, Roscrea, IRELAND
Mockel, Bettina, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003109014	A1	20030612
APPLICATION INFO.:	US 2002-143856	A1	20020514 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2001-986649, filed on 9 Nov 2001, ABANDONED Continuation-in-part of Ser. No. US 2000-528196, filed on 17 Mar 2000, ABANDONED
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: PILLSBURY WINTHROP, LLP, P.O. BOX 10500, MCLEAN, VA, 22102
NUMBER OF CLAIMS: 7
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Page(s)
LINE COUNT: 1271
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to a process for the preparation of L-amino acids by the fermentation of **coryneform** bacteria that over-express a gene encoding transketolase.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 2 OF 112 USPATFULL on STN DUPLICATE 2
ACCESSION NUMBER: 2003:71517 USPATFULL
TITLE: Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria
INVENTOR(S): Ziegler, Petra, Aachen, GERMANY, FEDERAL REPUBLIC OF
Eggeling, Lothar, Julich, GERMANY, FEDERAL REPUBLIC OF
Sahm, Hermann, Julich, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): Degusa Huls Aktiengeselschaft (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003049802	A1	20030313
APPLICATION INFO.:	US 2001-951535	A1	20010914 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1999-431099, filed on 1 Nov 1999, PENDING

	NUMBER	DATE

PRIORITY INFORMATION: DE 1999-19941478 19990901
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Pillsbury Winthrop LLP, Intellectual Property Group, 1600 Tysons Boulevard, McLean, VA, 22102
NUMBER OF CLAIMS: 15
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 1103
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to preferably recombinant DNA derived from **Corynebacterium** and replicable in **coryneform** microorganisms, which contains at least one nucleotide sequence that codes for the **thrE** gene, and a process for the **production** of L-threonine, which is characterised in that the following steps are carried out:

a) Fermentation of microorganisms in which at least the **thrE** gene is amplified (overexpressed), optionally in combination with further genes,

b) Enrichment of the L-threonine in the medium or in the cells of the microorganisms, and

c) Isolation of the L-threonine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 3 OF 112 USPATFULL on STN
ACCESSION NUMBER: 2003:312284 USPATFULL
TITLE: **Coryneform** bacteria which **produce** chemical compounds I
INVENTOR(S): Brigitte, Bathe, Salzkotten, GERMANY, FEDERAL REPUBLIC OF
Caroline, Kreutzer, Melle, GERMANY, FEDERAL REPUBLIC OF
Bettina, Mockel, Dusseldorf, GERMANY, FEDERAL REPUBLIC OF
Georg, Thierbach, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): Degussa AG (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003219881	A1	20031127
APPLICATION INFO.:	US 2003-358405	A1	20030205 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. WO 2002-EP8464, filed on 30 Jul 2002, UNKNOWN

	NUMBER	DATE
PRIORITY INFORMATION:	US 2001-309878P	20010806 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: PILLSBURY WINTHROP, LLP, P.O. BOX 10500, MCLEAN, VA, 22102
NUMBER OF CLAIMS: 48
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 7 Drawing Page(s)
LINE COUNT: 4364
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to **coryneform** bacteria which have, in addition to at least one copy, present at the natural site (locus), of an open reading frame (ORF), gene or allele which codes for the synthesis of a protein or an RNA, in each case a second, optionally third or fourth copy of this open reading frame (ORF), gene or allele at in each case a second, optionally third or fourth site in a form integrated into the chromosome and processes for the preparation of chemical compounds by fermentation of these bacteria.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 4 OF 112 USPATFULL on STN
ACCESSION NUMBER: 2003:282702 USPATFULL
TITLE: Process for the preparation of L-amino acids with amplification of the zwf gene
INVENTOR(S): Burke, Kevin, Galway, IRELAND
Sahm, Hermann, Julich, GERMANY, FEDERAL REPUBLIC OF
Eggeling, Lothar, Julich, GERMANY, FEDERAL REPUBLIC OF
Moritz, Bernd, Niederzier, GERMANY, FEDERAL REPUBLIC OF
Dunican, L. K., Galway, IRELAND
McCormack, Ashling, Westmeath, IRELAND
Stapelton, Cliona, Roscrea, IRELAND
Mockel, Bettina, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
Dunican, Rita, Galway, IRELAND LR

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003199045	A1	20031023
APPLICATION INFO.:	US 2002-91342	A1	20020306 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2000-531269, filed on 20 Mar 2000, ABANDONED
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Michael A. Sanzo, Fitch, Even, Tabin & Flannery, Suite 401L, 1801 K Street, N.W., Washington, DC, 20006-1201
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 5 Drawing Page(s)
LINE COUNT: 1910
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to a process for the preparation of L-amino acids. The process involves fermenting an L-amino acid **producing** **coryneform** bacteria in a culture medium, concentrating L-amino acid in the culture medium or in the cells of the bacteria, and isolating the L-amino acid **produced**. The bacteria has an amplified gene encoding the Zwischenferment protein.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 5 OF 112 USPATFULL on STN
ACCESSION NUMBER: 2003:251125 USPATFULL
TITLE: Process for the preparation of L-amino acids with amplification of the zwf gene
INVENTOR(S): Hans, Stephen, Osnabruek, GERMANY, FEDERAL REPUBLIC OF
Bathe, Brigitte, Salzkotten, GERMANY, FEDERAL REPUBLIC OF
Reth, Alexander, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
Kreutzer, Caroline, Melle, GERMANY, FEDERAL REPUBLIC OF
Mockel, Bettina, Dusseldorf, GERMANY, FEDERAL REPUBLIC OF

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003175911	A1	20030918
APPLICATION INFO.:	US 2003-336049	A1	20030103 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2002-91342, filed on 6 Mar 2002, PENDING Continuation-in-part of Ser. No. US 2000-531269, filed on 20 Mar 2000, ABANDONED
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Michael A. Sanzo, Fitch, Even, Tabin & Flannery, Suite 401L, 1801 K Street, N.W., Washington, DC, 20006-1201
NUMBER OF CLAIMS: 57
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 6 Drawing Page(s)
LINE COUNT: 3651

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to a process for the preparation of L-amino acids by the fermentation of **coryneform** bacteria. The process involves: fermenting an L-amino acid-**producing** bacteria in which at least the zwf gene is amplified; concentrating the L-amino acid in the medium or in the cells of the bacteria; and isolating the L-amino acid **produced**.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 10 OF 112 USPATFULL on STN

ACCESSION NUMBER: 2003:71519 USPATFULL

TITLE: **Corynebacterium** glutamicum genes encoding metabolic pathway proteins

INVENTOR(S): Pompejus, Markus, Freinsheim, GERMANY, FEDERAL REPUBLIC OF
Kroger, Burkhard, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Schroder, Hartwig, Nussloch, GERMANY, FEDERAL REPUBLIC OF
Zelder, Oskar, Speyer, GERMANY, FEDERAL REPUBLIC OF
Haberhauer, Gregor, Limburgerhof, GERMANY, FEDERAL REPUBLIC OF
Kim, Jun-Won, Seoul, KOREA, REPUBLIC OF
Lee, Heung-Shick, Seoul, KOREA, REPUBLIC OF
Hwang, Byung-Joon, Seoul, KOREA, REPUBLIC OF

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003049804	A1	20030313
APPLICATION INFO.:	US 2000-746660	A1	20001222 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2000-606740, filed on 23 Jun 2000, PENDING Continuation-in-part of Ser. No. US 2000-603124, filed on 23 Jun 2000, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19931420	19990708
	US 1999-141031P	19990625 (60)
	US 1999-142101P	19990702 (60)
	US 1999-148613P	19990812 (60)
	US 2000-187970P	20000309 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: LAHIVE & COCKFIELD, 28 STATE STREET, BOSTON, MA, 02109
NUMBER OF CLAIMS: 47
EXEMPLARY CLAIM: 1
LINE COUNT: 15004

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Isolated nucleic acid molecules, designated MP nucleic acid molecules, which encode novel MP proteins from **Corynebacterium** glutamicum are described. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing MP nucleic acid molecules, and host cells into which the expression vectors have been introduced. The invention still further provides isolated MP proteins, mutated MP proteins, fusion proteins, antigenic peptides and methods for the improvement of **production** of a desired compound from C. glutamicurn based on genetic engineering of MP genes in this organism.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 15 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 3

ACCESSION NUMBER: 2003:528325 BIOSIS

DOCUMENT NUMBER: PREV200300532908

TITLE: New ubiquitous translocators: Amino acid export by **Corynebacterium** glutamicum and Escherichia coli.

AUTHOR(S): Eggeling, Lothar [Reprint Author]; Sahm, Hermann

CORPORATE SOURCE: Institut fuer Biotechnologie, Forschungszentrum Juelich GmbH, 52425, Juelich, Germany
l.eggeling@fz-juelich.de

SOURCE: Archives of Microbiology, (September 2003) Vol. 180, No. 3, pp. 155-160. print.
ISSN: 0302-8933 (ISSN print).
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 12 Nov 2003
Last Updated on STN: 12 Nov 2003

AB Molecular access to amino acid **excretion** by **Corynebacterium** glutamicum and Escherichia coli led to the identification of structurally novel carriers and novel carrier functions. The exporters LysE, RhtB, **ThrE** and BrnFE each represent the protoype of new transporter families, which are in part distributed throughout all of the kingdoms of life. LysE of C. glutamicum catalytes the export of basic amino acids. The expression of the carrier gene is regulated by the cell-internal concentration of basic amino acids. This serves, for example, to maintain homoeostasis if an excess of L-lysine or L-arginine inside the cell should arise during growth on complex media. RhtB is one of five paralogous systems in E. coli, of which at least two are relevant for L-threonine **production**. A third system is relevant for L-cysteine **production**. It is speculated that the physiological function of these paralogues is related to quorum sensing. **ThrE** of C. glutamicum exports L-threonine and L-serine. However, a **ThrE** domain with a putative hydrolytic function points to an as yet unknown role of this exporter. BrnFE in C. glutamicum is a two-component permease exporting branched-chained amino acids from the cell, and an orthologue in B. subtilis exports 4-azaleucine.

L5 ANSWER 16 OF 112 USPATFULL on STN DUPLICATE 4
ACCESSION NUMBER: 2002:301187 USPATFULL
TITLE: New nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria
INVENTOR(S): Ziegler, Petra, Aachen, GERMANY, FEDERAL REPUBLIC OF
Eggeling, Lothar, Julich, GERMANY, FEDERAL REPUBLIC OF
Sahm, Hermann, Julich, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): Degussa-Huls AG (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002168731	A1	20021114
APPLICATION INFO.:	US 2001-783388	A1	20010215 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 1999-431099, filed on 1 Nov 1999, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19941478	19990901

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: PILLSBURY WINTHROP LLP, 1600 TYSONS BOULEVARD, MCLEAN, VA, 22102
NUMBER OF CLAIMS: 15
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 1200
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to preferably recombinant DNA derived from **Corynebacterium** and replicable in **coryneform** microorganisms, which contains at least one nucleotide sequence that codes for the **thrE** gene, and a process for the **production** of L-threonine, which is characterised in that the following steps are carried out:

a) Fermentation of microorganisms in which at least the **thrE** gene is amplified (overexpressed), optionally in combination with further genes,

b) Enrichment of the L-threonine in the medium or in the cells of the microorganisms, and

c) Isolation of the L-threonine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 17 OF 112 USPATFULL on STN DUPLICATE 5
ACCESSION NUMBER: 2002:280115 USPATFULL
TITLE: Process for the fermentative preparation of L-threonine
INVENTOR(S): Rieping, Mechthild, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): DEGUSSA AG (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002155551	A1	20021024
APPLICATION INFO.:	US 2001-834721	A1	20010416 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 2000-10026494	20000527
	DE 2001-102823	20010123
	US 2000-229328P	20000901 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: PILLSBURY WINTHROP LLP, 1600 TYSONS BOULEVARD, MCLEAN, VA, 22102
NUMBER OF CLAIMS: 18
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 1086
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Process for the fermentative preparation of L-threonine The invention provides a process for the fermentative preparation of L-threonine using Enterobacteriaceae which in particular already **produce** L-threonine and in which the nucleotide sequence(s) of **coryneform** bacteria which code(s) for the **thrE** gene are enhanced, in particular over-expressed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 18 OF 112 USPATFULL on STN DUPLICATE 6
ACCESSION NUMBER: 2002:265905 USPATFULL
TITLE: Nucleotide sequences coding for the **thrE** gene and process for the enzymatic **production** of L-threonine using **coryneform** bacteria
INVENTOR(S): Ziegler, Petra, Aachen, GERMANY, FEDERAL REPUBLIC OF
Eggeling, Lothar, Julich, GERMANY, FEDERAL REPUBLIC OF
Sahm, Hermann, Julich, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
PATENT ASSIGNEE(S): Degusa Huls Aktiengeselschaft (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002146781	A1	20021010
APPLICATION INFO.:	US 2001-963521	A1	20010927 (9)
RELATED APPLN. INFO.:	Division of Ser. No. US 1999-431099, filed on 1 Nov 1999, PENDING		

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19941478	19990901

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Intellectual Property Group, Pillsbury Winthrop LLP, 1600 Tysons Boulevard, McLean, VA, 22102
NUMBER OF CLAIMS: 15
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 1101
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to preferably recombinant DNA derived from **Corynebacterium** and replicable in **coryneform** microorganisms, which contains at least one nucleotide sequence that codes for the **thrE** gene, and a process for the **production** of L-threonine, which is characterised in that the following steps are carried out:

a) Fermentation of microorganisms in which at least the **thrE** gene is amplified (overexpressed), optionally in combination with further genes,

b) Enrichment of the L-threonine in the medium or in the cells of the microorganisms, and

c) Isolation of the L-threonine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 20 OF 112 USPATFULL on STN DUPLICATE 8
ACCESSION NUMBER: 2002:141116 USPATFULL
TITLE: Process for the fermentative preparation of L-amino acids using **coryneform** bacteria
INVENTOR(S): Ziegler, Petra, Aachen, GERMANY, FEDERAL REPUBLIC OF
Eggeling, Lothar, Julich, GERMANY, FEDERAL REPUBLIC OF
Sahm, Hermann, Julich, GERMANY, FEDERAL REPUBLIC OF
Thierbach, Georg, Bielefeld, GERMANY, FEDERAL REPUBLIC OF
Pfefferle, Walter, Halle, GERMANY, FEDERAL REPUBLIC OF

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002072098	A1	20020613
	US 6596516	B2	20030722
APPLICATION INFO.:	US 2000-731826	A1	20001208 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	DE 1999-19959329	19991209

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: Smith, Gambrell & Russell, LLP, Beveridge, DeGrandi, Weilacher & Young, Intellectual Property Group, 1850 M Street, N.W., Suite 800, Washington, DC, 20036
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 1 Drawing Page(s)
LINE COUNT: 1021
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A process for the preparation of L-amino acids, in which the following steps are carried out,

a) fermenting the desired L-amino acid-**producing** bacteria in which at least the glyA gene is attenuated, in particular by removal of the natural promoter, and optionally

b) concentrating the desired **product** in the medium or in the cells of the bacteria and

c) isolating the L-amino acid,

and optionally bacteria in which further genes of the biosynthesis pathway of the desired L-amino acid are additionally amplified are employed, or bacteria in which the metabolic pathways which reduce the formation of the desired L-amino acid are at least partly eliminated are employed, and nucleotide sequences of the lacI-tac-5'glyA or lacI-tac-glyA unit.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 45 OF 112 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN
ACCESSION NUMBER: 2002-13374 BIOTECHDS

TITLE: New isolated deformylase polypeptide encoding polynucleotide from **coryneform** bacteria which when present in attenuated form in L-lysine **producing** bacteria, results in increased fermentative **production** of L-lysine;
recombinant enzyme gene, vector expression in host cell, fermentation for L-amino acid **production**

AUTHOR: FARWICK M; HUTHMACHER K; BREHME J; PFEFFERLE W
PATENT ASSIGNEE: DEGUSSA AG

PATENT INFO: WO 2002024922 28 Mar 2002
APPLICATION INFO: WO 2000-EP8602 19 Sep 2000
PRIORITY INFO: DE 2001-1013957 22 Mar 2001
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2002-394142 [42]
AN 2002-13374 BIOTECHDS

AB DERWENT ABSTRACT:
NOVELTY - An isolated **coryneform** bacteria polynucleotide (I) comprising a def gene polynucleotide which: (a) is 70% identical to polynucleotide coding for polypeptide (P) that has a fully defined deformylase (P) sequence of 193 amino acids (S2) as given in specification; and (b) codes for (P) which has an amino acid sequence that is 70% identical to (S2), where (P) preferably has activity of polypeptide deformylase, is new.

DETAILED DESCRIPTION - An isolated **coryneform** bacteria polynucleotide (I) comprising a nucleotide sequence coding for def gene which: (a) is 70% identical to polynucleotide coding for polypeptide which has a fully defined def polypeptide sequence of 193 amino acids (S2) as given in specification; (b) codes for polypeptide which comprises amino acid sequence that is 70% identical to (S2); (c) is complementary to (a) or (b), or comprises 15 contiguous nucleotides of (a), (b) or (c), where the encoded polypeptide preferably has the activity of polypeptide deformylase, is new. INDEPENDENT CLAIMS are also included for the following: (1) a vector pCR2.1defint (II), the restriction map of which is reproduced in the specification, and is deposited in the Escherichia coli strain Top10/pCR2.1defint under no. DSM 14146 at the Deutsche Sammlung fur Mikroorganismen und Zellenkulturen (German collection of microorganisms and cell cultures); (2) a **coryneform** bacterium which contains a vector which **carries** parts of (I), but at least 15 successive nucleotides of the polynucleotide; and (3) a **coryneform** bacterium (III) in which the def gene is attenuated, in particular eliminated.

WIDER DISCLOSURE - The following are disclosed: (1) polynucleotides which substantially comprise a polynucleotide sequence corresponding to a fully defined def polynucleotide sequence of 1040 nucleotides (S1) as given in specification; and (2) amino acid sequences that differ from (III) due to conservative amino acid substitutions.

BIOTECHNOLOGY - Preferred Polynucleotide: (I) is preferably a recombinant DNA which is capable of replication in **coryneform** bacteria. Optionally, (I) is a RNA. The recombinant DNA comprises: (1) a fully defined def polynucleotide sequence of 1040 nucleotides (S1) as given in specification; (2) at least one sequence which corresponds to sequence (S1) within the range of the degeneracy of genetic code; (3) at least one sequence which hybridizes with the sequences complementary to (S1) or its degenerate variant; or optionally (4) comprises sense mutations of neutral function in (S1). The recombinant DNA most preferably codes for a polypeptide comprising the sequence of (S2).

USE - (I) is useful as hybridization probes for discovering RNA, cDNA and DNA in order to isolate nucleic acids, polynucleotides or genes which code for deformylase or have a high similarity with the sequence of the def gene. (III) (preferably, **Corynebacterium** glutamicum) is useful for preparing L-amino acids in particular L-lysine by the following process which involves fermenting (III), concentrating L-amino acid in the medium or in the cells of the bacteria and isolating the L-amino acid, the biomass and/or constituents of the fermentation broth optionally remaining in their entire amount or in portions in the **product** obtained in this way. Preferably, bacteria in which: (a) further genes of the biosynthesis pathway of the desired L-amino acid are additionally enhanced; (b) the metabolic pathways that reduce the formation of desired L-amino acid are at least partially eliminated; (c) expression of polynucleotide(s) which code(s) for def gene is reduced in

particular eliminated; or (d) the catalytic properties of polypeptide (enzyme protein) encoded by def polynucleotide are **produced**, are used in the process. Under preferred conditions, for preparing L-amino acids, **coryneform** microorganisms in which at the same time one or more of the genes such as: (a) the dapA gene which codes for dihydrodipicolinate synthase; (b) the gap gene which codes for glyceraldehyde 3-phosphate dehydrogenase; (c) the zwf gene which codes for glucose 6-phosphate dehydrogenase; (d) the pyc gene which codes for pyruvate carboxylase; (e) the lysE gene which codes for lysine **export**; (f) the lysC gene which codes for a feed back resistant aspartate kinase; (g) the zwa1 gene which codes for the Zwa1 protein; (h) the tpi gene which codes for triose phosphate isomerase; (i) the pgk gene which codes for 3-phosphoglycerate kinase; (j) the mqo gene which codes for malate-quinone oxidoreductase; (k) the hom gene which codes for homoserine dehydrogenase; (l) the ilvA gene which codes for **threonine** dehydratase or the ilvA (Fbr) allele which codes for a feed back resistant **threonine** dehydratase; (m) the ilvBN gene which codes for acetohydroxyacid synthase; or (n) the ilvD gene which codes for dihydroxy-acid dehydratase is/are enhanced preferably, overexpressed are fermented. Additionally, bacteria in which at the same time one or more of the genes such as: (a) the pck gene which codes for phosphoenol pyruvate carboxykinase; (b) the pgi gene which codes for glucose 6-phosphate isomerase; (c) the poxB gene which codes for pyruvate oxidase; and (d) the zwa2 gene which codes for the zwa2 protein is/are attenuated, are employed for **producing** L-lysine (all claimed). (I) is also useful as polymerase chain reaction (PCR) primers.

ADVANTAGE - (I) provided in attenuated form allows improved fermentative preparation of L-lysine.

EXAMPLE - To isolate the deformylase (def) gene of **Corynebacterium** glutamicum, a gene library of this microorganism was first set up in Escherichia coli. Specifically a genomic cosmid gene library from C. glutamicum American Type Culture Collection (ATCC) 13032 was prepared. The cosmid DNA of an individual colony was isolated and partly cleaved with Sau3AI. The DNA fragments were dephosphorylated with shrimp alkaline phosphatase. After separation by gel electrophoresis, the cosmid fragments in the size range of 1500 to 2000 base pairs (bp) were isolated. The DNA of the sequencing vector pZero-1 was cleaved with BamHI and ligated with the cosmid fragments. This ligation mixture was then electroporated into the E. coli strain DH5alphamcr. The plasmid preparation of the recombinant clones was **carried** out and sequencing was performed. The raw sequence data obtained were then processed using the Staden program package. The individual sequences of the pZero1 derivatives were assembled to a continuous contig. The computer-assisted coding region analyses were prepared with the XNIP program. The resulting nucleotide sequence had a fully defined sequence of 1040 nucleotides as given in specification. Analysis of the nucleotide sequence showed an open reading frame of 1582 bp, which was called the def gene. The def gene codes for a polypeptide of 193 amino acids. For preparing integration vector for integration mutagenesis of the def gene, chromosomal DNA was isolated from strain ATCC13032. On the basis of the sequence of the def gene known for C. glutamicum polymerase chain reaction primers were synthesized and amplification **carried** out. The primers allowed amplification of an internal fragment of the def gene 310 bp in size. The **product** amplified was tested electrophoretically. The amplified DNA fragment was ligated with the TOPO TA cloning kit in the vector pCR2.1-TOPO. The E. coli strain TOPO10 was then electroporated with the ligation batch. Selection of plasmid-carrying cells was **carried** out. Plasmid DNA was isolated from a transformant and checked by restriction with EcoRI and subsequent agarose gel electrophoresis. The plasmid was called pCR2.1defint which was electroporated in C. glutamicum DSM 5715 which is an AEC-resistant lysine **producer**. The vector pCR2.1defint cannot replicate independently in DSM5715 and is retained in the cell only if it has integrated into the chromosome of DSM 5715. Selection of clones with pCR2.1defint integrated into the chromosome was **carried** out. For detection of the integration, the defint fragment was labeled with the Dig hybridization kit. Chromosomal DNA of a potential integrant was isolated and in each case cleaved with EcoRI and PstI. The fragments formed were separated and hybridized at 68 degrees C with the Dig hybridization kit. The plasmid pCR2.1defint had been inserted into the chromosome of DSM 5715 within the chromosomal def gene.

The strain was called DSM5715::pCR2.1defint. The C. glutamicum strain DSM5715::pCR2.1defint was cultured in a nutrient medium suitable for the **production** of lysine and the lysine content in the culture supernatant was determined. Results showed that the strain DSM5715::pCR2.1defint **produced** 13.28 g/l of lysine HCl in comparison to strain DSM5715 which **produced** 12.64 g/l of lysine HCl. (41 pages)

L5 ANSWER 64 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 29
ACCESSION NUMBER: 2002:416628 BIOSIS
DOCUMENT NUMBER: PREV200200416628
TITLE: Identification of glyA (encoding serine hydroxymethyltransferase) and its use together with the exporter **ThrE** to increase L-threonine accumulation by **Corynebacterium** glutamicum.
AUTHOR(S): Simic, Petra; Willuhn, Juliane; Sahm, Hermann; Eggeling, Lothar [Reprint author]
CORPORATE SOURCE: Institut fuer Biotechnologie, Forschungszentrum Juelich GmbH, D-52425, Juelich, Germany
l.eggeling@fz-juelich.de
SOURCE: Applied and Environmental Microbiology, (July, 2002) Vol. 68, No. 7, pp. 3321-3327. print.
CODEN: AEMIDF. ISSN: 0099-2240.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 31 Jul 2002
Last Updated on STN: 23 Sep 2002
AB L-Threonine can be made by the amino acid-**producing** bacterium **Corynebacterium** glutamicum. However, in the course of this process, some of the L-threonine is degraded to glycine. We detected an aldole cleavage activity of L-threonine in crude extracts with an activity of 2.2 nmol min-1 (mg of protein)-1. In order to discover the molecular reason for this activity, we cloned glyA, encoding serine hydroxymethyltransferase (SHMT). By using affinity-tagged glyA, SHMT was isolated and its substrate specificity was determined. The aldole cleavage activity of purified SHMT with L-threonine as the substrate was 1.3 mumol min-1 (mg of protein)-1, which was 4% of that with L-serine as substrate. Reduction of SHMT activity in vivo was obtained by placing the essential glyA gene in the chromosome under the control of Ptac, making glyA expression isopropylthiogalactopyranoside dependent. In this way, the SHMT activity in an L-threonine **producer** was reduced to 8% of the initial activity, which led to a 41% reduction in glycine, while L-threonine was simultaneously increased by 49%. The intracellular availability of L-threonine to aldole cleavage was also reduced by overexpressing the L-threonine exporter **thrE**. In C. glutamicum DR-17, which overexpresses **thrE**, accumulation of 67 mM instead of 49 mM L-threonine was obtained. This shows that the potential for amino acid formation can be considerably improved by reducing its intracellular degradation and increasing its export.

L5 ANSWER 65 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 30
ACCESSION NUMBER: 2002:462669 BIOSIS
DOCUMENT NUMBER: PREV200200462669
TITLE: Influence of threonine exporters on threonine **production** in Escherichia coli.
AUTHOR(S): Kruse, D.; Kraemer, R.; Eggeling, L.; Rieping, M.; Pfefferle, W.; Tchieu, J. H.; Chung, Y. J.; Saier, M. H., Jr.; Burkovski, A. [Reprint author]
CORPORATE SOURCE: Institut fuer Biochemie der Universitaet zu Koeln, Zuelpicherstrasse 47, 50674, Cologne, Germany
a.burkovski@uni-koeln.de
SOURCE: Applied Microbiology and Biotechnology, (July, 2002) Vol. 59, No. 2-3, pp. 205-210. print.
CODEN: AMBIDG. ISSN: 0175-7598.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 28 Aug 2002
Last Updated on STN: 28 Aug 2002
AB Threonine **production** in Escherichia coli threonine

producer strains is enhanced by overexpression of the E. coli rhtB and rhtC genes or by heterologous overexpression of the gene encoding the **Corynebacterium** glutamicum threonine **excretion** carrier, **thrE**. Both E. coli genes give rise to a threonine-resistant phenotype when overexpressed, and they decrease the accumulation of radioactive metabolites derived from (14C) L-threonine. The evidence presented supports the conclusion that both RhtB and RhtC catalyze efflux of L-threonine and other structurally related neutral amino acids, but that the specificities of these two carriers differ substantially.

L5 ANSWER 66 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 31

ACCESSION NUMBER: 2001-602792 [68] WPIDS
CROSS REFERENCE: 2003-874649 [81]
DOC. NO. CPI: C2001-178618
TITLE: Preparing L-amino acids by fermenting **coryneform** bacteria transformed with the 6-phosphogluconate dehydrogenase gene is particularly useful to **produce** L-lysine and L-threonine.
DERWENT CLASS: B02 B05 D13 D16 E13 E16
INVENTOR(S): BURKE, K; DUNICAU, L K; MCCORMACK, A; MOECKEL, B; STAPELTON, C; DUNICAN, L K
PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG; (UYNA-N) UNIV NAT IRELAND
COUNTRY COUNT: 33
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2001071012	A1	20010927	(200168)*	EN	30
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
W: AU BR CA CN HU ID JP KR MX PL RU SK UA ZA					
AU 2000064316	A	20011003	(200210)		
EP 1179076	A1	20020213	(200219)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
BR 2000010817	A	20020305	(200225)		
KR 2001113832	A	20011228	(200240)		
SK 2001001654	A3	20020702	(200253)		
CN 1350586	A	20020522	(200258)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001071012	A1	WO 2000-EP6299	20000705
AU 2000064316	A	AU 2000-64316	20000705
EP 1179076	A1	EP 2000-951336	20000705
		WO 2000-EP6299	20000705
BR 2000010817	A	BR 2000-10817	20000705
		WO 2000-EP6299	20000705
KR 2001113832	A	KR 2001-714821	20011120
SK 2001001654	A3	WO 2000-EP6299	20000705
		SK 2001-1654	20000705
CN 1350586	A	CN 2000-807548	20000705

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2000064316	A	Based on	WO 2001071012
EP 1179076	A1	Based on	WO 2001071012
BR 2000010817	A	Based on	WO 2001071012
SK 2001001654	A3	Based on	WO 2001071012

PRIORITY APPLN. INFO: US 2000-531265 20000320
AN 2001-602792 [68] WPIDS
CR 2003-874649 [81]
AB WO 200171012 A UPAB: 20031216
NOVELTY - Preparing L-amino acids by fermenting **coryneform** bacteria, comprising fermenting the L-amino acid **producing** bacteria in which at least the 6-phosphogluconate dehydrogenase (gnd) gene is amplified, and concentrating and isolating the L-amino acid

produced, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) the plasmid vector pEC-T18mob2 deposited under accession number DSM 13244 in Escherichia coli K-12 DH5 alpha ; and

(2) a **coryneform** microorganism, in particularly of the genus **Corynebacterium**, transformed with the vector of (1) which additionally contains the gnd gene.

USE - The L-amino acids **produced** are used in animal nutrition, human medicine and the pharmaceuticals industry.

Dwg.0/4

L5 ANSWER 69 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 34

ACCESSION NUMBER: 2001-227606 [24] WPIDS
CROSS REFERENCE: 1998-089551 [09]; 1998-089552 [09]; 1998-089627 [09]; 1998-089628 [09]; 1998-520868 [44]; 2001-203286 [51]; 2001-203287 [51]; 2001-210815 [44]; 2001-210816 [44]
DOC. NO. CPI: C2001-068103
TITLE: New cloned **Corynebacterium** glutamicum **thrE** gene useful for **producing** **thrE**-overexpressing **coryneform** bacteria for **production** of L-threonine.
DERWENT CLASS: B05 D16 E16
INVENTOR(S): EGGELING, L; SAHM, H; THIERBACH, G; ZIEGLER, P
PATENT ASSIGNEE(S): (DEGS) DEGUSSA-HUELS AG; (KERJ) FORSCHUNGSZENTRUM JUELICH GMBH; (DEGS) DEGUSSA AG
COUNTRY COUNT: 35
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 19941478	A1	20010308	(200124)*		21
EP 1085091	A1	20010321	(200124)	GE	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
CA 2315978	A1	20010301	(200125)	EN	
JP 2001095592	A	20010410	(200128)		23
ZA 2000004560	A	20010531	(200134)		46
CN 1291651	A	20010418	(200141)		
BR 2000003943	A	20011009	(200168)		
SK 2000001304	A3	20011106	(200176)		
KR 2001070044	A	20010725	(200206)		
AU 2000055024	A	20020103	(200209)		
US 6410705	B1	20020625	(200246)		
US 2002107378	A1	20020808	(200254)		
US 2002146781	A1	20021010	(200269)		
HU 2000003445	A1	20021028	(200277)		
US 2002168731	A1	20021114	(200277)		
US 2003049802	A1	20030313	(200321)		
EP 1085091	B1	20030723	(200356)	GE	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
DE 50002971	G	20030828	(200357)		

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
DE 19941478	A1		DE 1999-19941478	19990901
EP 1085091	A1		EP 2000-118053	20000823
CA 2315978	A1		CA 2000-2315978	20000828
JP 2001095592	A		JP 2000-263283	20000831
ZA 2000004560	A		ZA 2000-4560	20000831
CN 1291651	A		CN 2000-122891	20000831
BR 2000003943	A		BR 2000-3943	20000831
SK 2000001304	A3		SK 2000-1304	20000828
KR 2001070044	A		KR 2000-51207	20000831
AU 2000055024	A		AU 2000-55024	20000830
US 6410705	B1		US 1999-431099	19991101
US 2002107378	A1	Div ex	US 1999-431099	19991101
			US 2001-951536	20010914

US 2002146781 A1 Div ex	US 1999-431099	19991101
	US 2001-963521	20010927
HU 2000003445 A1	HU 2000-3445	20000831
US 2002168731 A1 CIP of	US 1999-431099	19991101
	US 2001-783388	20010215
US 2003049802 A1 Div ex	US 1999-431099	19991101
	US 2001-951535	20010914
EP 1085091 B1	EP 2000-118053	20000823
DE 50002971 G	DE 2000-502971	20000823
	EP 2000-118053	20000823

FILING DETAILS:

PATENT NO	KIND		PATENT NO
DE 50002971	G	Based on	EP 1085091

PRIORITY APPLN. INFO: DE 1999-19941478 19990901
AN 2001-227606 [24] WPIDS
CR 1998-089551 [09]; 1998-089552 [09]; 1998-089627 [09]; 1998-089628 [09]; 1998-520868 [44]; 2001-203286 [51]; 2001-203287 [51]; 2001-210815 [44]; 2001-210816 [44]
AB DE 19941478 A UPAB: 20020208
NOVELTY - Cloned **Corynebacterium** glutamicum **thrE** gene (I) is new

DETAILED DESCRIPTION - **Corynebacterium** DNA (I) that is replicable in **coryneform** microorganisms and comprises at least one nucleotide sequence that codes for the **thrE** gene (sic) is new.

INDEPENDENT CLAIMS are also included for the following:

(1) an amino acid sequence that is derived from the nucleic acid sequence of (I) and is selected from two sequences of 489 amino acids given in the specification;

(2) **coryneform** microorganisms transformed with (I);

(3) **production** of L-threonine by culturing **coryneform** bacteria in which nucleotide sequences encoding the **thrE** gene (sic) are overexpressed; and

(4) a process for **producing** (I).

USE - **Coryneform** bacteria that overexpress (I) are useful for **producing** L-threonine, which is useful in animal nutrition, human medicine and the pharmaceutical industry.

Dwg.0/2

L5 ANSWER 70 OF 112 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN DUPLICATE 35
ACCESSION NUMBER: 2002-115532 [16] WPIDS
DOC. NO. CPI: C2002-035623
TITLE: Fermentative **production** of L-threonine, useful in animal nutrition, comprises culturing enterobacterium with increased **thrE** gene activity.
DERWENT CLASS: B05 D16 E16
INVENTOR(S): RIEPING, M
PATENT ASSIGNEE(S): (DEGS) DEGUSSA AG
COUNTRY COUNT: 95
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 10102823	A1	20011129	(200216)*		23
WO 2001092545	A1	20011206	(200216)	EN	

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

AU 2001058316	A	20011211	(200225)		
US 2002155551	A1	20021024	(200273)		
EP 1285075	A1	20030226	(200319)	EN	

R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

KR 2003036199 A 20030509 (200358)
CN 1430672 A 20030716 (200363)
MX 2002008416 A1 20030101 (200373)

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
DE 10102823	A1		DE 2001-10102823	20010123
WO 2001092545	A1		WO 2001-EP3980	20010406
AU 2001058316	A		AU 2001-58316	20010406
US 2002155551	A1	Provisional	US 2000-229328P	20000901
			US 2001-834721	20010416
EP 1285075	A1		EP 2001-931575	20010406
			WO 2001-EP3980	20010406
KR 2003036199	A		KR 2002-716099	20021127
CN 1430672	A		CN 2001-810198	20010406
MX 2002008416	A1		WO 2001-EP3980	20010406
			MX 2002-8416	20020828

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2001058316	A	Based on	WO 2001092545
EP 1285075	A1	Based on	WO 2001092545
MX 2002008416	A1	Based on	WO 2001092545

PRIORITY APPLN. INFO: DE 2000-10026494 20000527
AN 2002-115532 [16] WPIDS
AB DE 10102823 A UPAB: 20020308
NOVELTY - Fermentative **production** of L-threonine (I) using an Enterobacterium, especially one that already **produces** (I), in which activity of the **thrE** gene sequence (or sequences) is increased, particularly by overexpression, is new.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) plasmid pZ1thrE containing the **thrE** gene of **Corynebacterium** glutamicum ATCC 13032; and
Brevibacterium flavum DM368-2 pZ1thrE, deposited as DSM 12840.
USE - (I) is useful in animal nutrition, human medicine and the pharmaceutical industry.
ADVANTAGE - Overexpression of **thrE** results in increased **production** of (I).
Dwg.0/4

L5 ANSWER 74 OF 112 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 36
ACCESSION NUMBER: 2001:557732 BIOSIS
DOCUMENT NUMBER: PREV200100557732
TITLE: The cell wall barrier of **Corynebacterium** glutamicum and amino acid efflux.
AUTHOR(S): Eggeling, Lothar [Reprint author]; Sahm, Hermann
CORPORATE SOURCE: Institut fuer Biotechnologie, Forschungszentrum Juelich GmbH, 52425, Juelich, Germany
l.eggeling@fz-juelich.de
SOURCE: Journal of Bioscience and Bioengineering, (2001) Vol. 92, No. 3, pp. 201-213. print.
ISSN: 1389-1723.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 5 Dec 2001
Last Updated on STN: 25 Feb 2002
AB **Corynebacterium** glutamicum is extremely well suited for the **production** of amino acids, and the way in which the biosynthesis pathways have to be engineered for this purpose is very well understood. However, the special significance of the cell envelope as a barrier for the **production** process is only just being recognized. In addition to the pathways it determines the cellular synthesis capacity. The cell wall of the **Corynebacterianeae**, which also include Mycobacterium tuberculosis, has a complex structure and first detailed

findings on the structure and synthesis of their cell wall are available. In addition to the ubiquitous inner lipid bilayer, the cell envelope has an outer lipid layer which contains mycolic acids and is probably also organized as a bilayer. During export, the amino acid has to pass these different layers of the cell wall. Molecular investigations have now identified the L-lysine exporter LysE and the L-threonine exporter **ThrE** which are localized in the inner cytoplasmic bilayer. It was revealed that both carriers represent the prototype of previously unknown translocator families. This involves extended families whose members are present in bacteria and archeae. The L-lysine exporter also exports L-arginine. Its expression is regulated by an elevated concentration of the cell-internal amino acid, which may, for example, be the case in the presence of peptides. Export thus represents a new bacterial mechanism for regulating the cellular amino acid balance. The export of L-glutamic acid is still enigmatic, although the outer lipid layer seems to play a major role in the efflux of this amino acid. Very special and surprisingly different treatments, such as the addition of detergents, but also the addition of penicillin, are always required in order to obtain high efflux of L-glutamate. It is assumed that the ultimate target of these different additions is primarily the outer mycolic acid layer. The individual twenty amino acids might pass the various layers of the cell envelope in quite different ways. A major challenge for future work is to discover how this takes place in detail and to then apply these findings for a further strain improvement.

L5 ANSWER 75 OF 112 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:213630 CAPLUS
DOCUMENT NUMBER: 135:1077
TITLE: Secretion and degradation of L-threonine in **Corynebacterium** glutamicum
AUTHOR(S): Ziegler, Petra
CORPORATE SOURCE: Germany
SOURCE: Berichte des Forschungszentrums Juelich (2000), Juel-3816, i-xii, 1-130
CODEN: FJBEE5; ISSN: 0366-0885
DOCUMENT TYPE: Report
LANGUAGE: German

AB The aerobic, Gram-pos. soil bacterium **Corynebacterium** glutamicum is an effective **producer** of amino acids. It is able to **excrete** L-Thr which is economically important as an additive for animal feed. Recently, it was shown that an efficient prodn. of L-Thr with C. glutamicum is limited by its intracellular degrdn. and by the low capacity of an assumed L-Thr export carrier. The present work describes the investigation of L-Thr degrading enzymes in C. glutamicum as well as the identification and characterization of the L-Thr export carrier gene. Enzymic investigations revealed that L-Thr is converted to Gly and acetaldehyde. This aldol cleavage was shown to be catalyzed by Ser hydroxymethyltransferase (SHMT). The corresponding gene glyA was isolated and sequenced. However, since glyA was proved to be essential for C. glutamicum its inactivation was not possible. Therefore, a strain with a single chromosomal copy of glyA under control of the IPTG inducible tac-promoter was constructed. In this strain SHMT activity could be down-regulated by low IPTG concns. to 10% of the enzyme activity of the wild type. Previously, biochem. analyses have revealed that L-Thr efflux in C. glutamicum is carrier-mediated. To identify and clone the corresponding export carrier gene, an appropriate screening system for export deficient mutants was established. It was shown that the addn. of the tripeptide Thr-Thr-Thr to the medium led to retarded growth due to intracellular accumulation of L-Thr. Export deficient mutants should be unable to grow under these conditions due to extremely high intracellular amts. of L-Thr. A transposon mutant bank of C. glutamicum was constructed. Using the tripeptide screening system, 9 mutants were isolated that exhibited retarded growth in presence of Thr-Thr-Thr. Anal. of the insertion sites of the transposon showed that in 1 of these mutants the inactivated gene was the L-Thr export carrier gene **thrE**. This gene encodes a hydrophobic membrane protein which does not show homol. to any known transporter. It is 489 amino acids in size and is predicted to possess 9 putative transmembrane helixes. It was proved that L-Thr export is correlated with **thrE** expression. Inactivation of **thrE** resulted in a reduced export rate for L-Thr of 1.0 nmol min'1 mg"' dry wt., compared to 2.5 nmol min-1 mg-1 dry wt. for the wild

type, whereas with overexpressed **thrE** L-Thr was exported at a rate of 3.8 nmol min-1 mg-1 dry wt. Furthermore, the substrate specificity of the L-Thr export carrier was investigated. In addn. to L-Thr also L-Ser is transported by **ThrE**. Overexpression of **thrE** in combination with reduced L-Thr degrdn. led to an increase of extracellular accumulated L-Thr of about 50% in a L-Thr **producing** strain of C. glutamicum.

REFERENCE COUNT: 92 THERE ARE 92 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 77 OF 112 PASCAL COPYRIGHT 2004 INIST-CNRS. ALL RIGHTS RESERVED. on STN DUPLICATE 37

ACCESSION NUMBER: 1996-0103519 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Threonine diffusion and threonine transport in **Corynebacterium** glutamicum and their role in threonine **production**
AUTHOR: PALMIERI L.; BERNS D.; KRAEMER R.; EIKMANNS M.
CORPORATE SOURCE: Forschungszent. Juelich, Inst. Biotechnologie, 52425 Juelich, Germany, Federal Republic of
SOURCE: Archives of microbiology, (1996), 165(1), 48-54, 26 refs.
ISSN: 0302-8933 CODEN: AMICCW
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: Germany, Federal Republic of
LANGUAGE: English
AVAILABILITY: INIST-856, 354000052103240070

AN 1996-0103519 PASCAL
CP Copyright .COPYRGT. 1996 INIST-CNRS. All rights reserved.
AB Transmembrane **threonine** fluxes (i.e., uptake, diffusion, and **carrier**-mediated **excretion**) all contributing to **threonine production** by a recombinant strain of **Corynebacterium** glutamicum, were analyzed and quantitated. A **threonine**-uptake **carrier** that transports **threonine** in symport with sodium ions was identified. Under **production** conditions (i.e., when internal **threonine** is high), this uptake system catalyzed predominantly **threonine**/**threonine** exchange. **Threonine export** via the uptake system was excluded. **Threonine** efflux from the cells was shown to comprise both **carrier**-mediated **excretion** and passive diffusion. The latter process was analyzed after inhibition of all **carrier**-mediated fluxes. **Threonine** diffusion was found to proceed with a first-order rate constant of 0.003 min-' or 0.004 .mu.1 min.sup.-.sup.1 (mg dry wt.).sup.-.sup.1, which corresponds to a permeability of 8 x 10.sup.-.sup.1.sup.0 cm s.sup.-.sup.1. According to this permeability, less than 10% of the efflux observed under optimal conditions takes place via diffusion, and more than 90% must result from the activity of the **excretion carrier**. In addition, the **excretion carrier** was identified by (1) inhibition of its activity by amino acid modifying reagents and (2) its dependence on metabolic energy in the form of the membrane potential. Activity of the **excretion** system depended on the membrane potential, but not on the presence of sodium ions. **Threonine export** in antiport against protons is proposed.

L5 ANSWER 79 OF 112 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 94152608 EMBASE
DOCUMENT NUMBER: 1994152608
TITLE: Molecular aspects of lysine, threonine, and isoleucine biosynthesis in **Corynebacterium** glutamicum.
AUTHOR: Eikmanns B.J.; Eggeling L.; Sahm H.
CORPORATE SOURCE: Institut fur Biotechnologie, Forschungszentrum Julich GmbH,D-52425 Julich, Germany
SOURCE: Antonie van Leeuwenhoek, International Journal of General and Molecular Microbiology, (1993) 64/2 (145-163).
ISSN: 0003-6072 CODEN: ALJMAO
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; General Review

FILE SEGMENT: 004 Microbiology
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The Gram-positive bacterium **Corynebacterium** glutamicum is used for the industrial **production** of amino acids, e.g. of L-glutamate and L-lysine. In the last ten years genetic engineering methods were developed for C. glutamicum and consequently, recombinant DNA technology was employed to study the biosynthetic pathways and to improve the amino acid **productivity** by manipulation of enzymatic, transport and regulatory functions of this bacterium. The present review summarizes the current knowledge on the synthesis and overproduction of the aspartate derived amino acids L-lysine, L-**threonine** and L-isoleucine in C. glutamicum. A special feature of C. glutamicum is its ability to convert the lysine intermediate piperideine-2,6-dicarboxylate to diaminopimelate by two different routes, i.e. by reactions involving succinylated intermediates or by the single reaction of diaminopimelate dehydrogenase. The flux distribution over the two pathways is regulated by the ammonium availability. The overall carbon flux from aspartate to lysine, however, is governed by feedback-control of the aspartate kinase and by the level of dihydrodipicolinate synthase. Consequently, expression of lysC(FBR) encoding a deregulated aspartate kinase and/or the overexpression of dapA encoding dihydrodipicolinate synthase led to overproduction of lysine. As a further specific feature C. glutamicum possesses a specific lysine **export carrier** which shows high activity in lysine overproducing mutants. **Threonine** biosynthesis is in addition to control by the aspartate kinase tightly regulated at the level of homoserine dehydrogenase which is subject to feedback-inhibition and to repression. C. glutamicum strains possessing a deregulated aspartate kinase and a deregulated homoserine dehydrogenase **produce** lysine and **threonine**. Amplification of deregulated homoserine dehydrogenase in such strains led to an almost complete redirection of the carbon flux to **threonine**. For a further flux from **threonine** to isoleucine the allosteric control of **threonine** dehydratase and of the acetohydroxy acid synthase are important. The expression of the genes encoding the latter enzyme is additionally regulated at the transcriptional level. By addition of 2-oxobutyrate as precursor and by bypassing the expression control of the acetohydroxy acid synthase genes high isoleucine overproduction can be obtained.

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L5 ANSWER 77 OF 112 PASCAL COPYRIGHT 2004 INIST-CNRS. ALL RIGHTS RESERVED. on STN DUPLICATE 37
TIEN Threonine diffusion and threonine transport in **Corynebacterium** glutamicum and their role in threonine **production**
AB Transmembrane **threonine** fluxes (i.e., uptake, diffusion, and **carrier**-mediated **excretion**) all contributing to **threonine production** by a recombinant strain of **Corynebacterium** glutamicum, were analyzed and quantitated. A **threonine**-uptake **carrier** that transports **threonine** in symport with sodium ions was identified. Under **production** conditions (i.e., when internal **threonine** is high), this uptake system catalyzed predominantly **threonine**/**threonine** exchange. **Threonine export** via the uptake system was excluded. **Threonine** efflux from the cells was shown to comprise both **carrier**-mediated **excretion** and passive diffusion. The latter process was analyzed after inhibition of all **carrier**-mediated fluxes. **Threonine** diffusion was found to proceed with a first-order rate constant of 0.003 min-' or 0.004 .mu.l min.sup.-.sup.1 (mg dry wt.).sup.-.sup.1,. . . efflux observed under optimal conditions takes place via diffusion, and more than 90% must result from the activity of the **excretion carrier** . In addition, the **excretion carrier** was identified by (1) inhibition of its activity by amino acid modifying reagents and (2) its dependence on metabolic energy in the form of the membrane potential. Activity of the **excretion** system depended on the membrane potential, but not on the presence of sodium ions. **Threonine export** in antiport against protons is proposed.

CT **Corynebacterium** glutamicum; Threonine; Aminoacid; Membrane transport; Uptake; Secretion
CTFR **Corynebacterium** glutamicum; Threonine; Aminoacide; Transport membranaire; Captation; Secretion
CTES **Corynebacterium** glutamicum; Treonina; Aminoacido; Transporte membranal; Captacion; Secrecion
BT **Corynebacteriaceae**; Actinomycetes; Bacteria
BTFR **Corynebacteriaceae**; Actinomycetes; Bacterie
BTES **Corynebacteriaceae**; Actinomycetes; Bacteria

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(FILE 'HOME' ENTERED AT 13:38:48 ON 11 FEB 2004)

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, AQUASCI, BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CANCERLIT, CAPLUS, CEABA-VTB, CEN, CIN, CONFSCI, CROPB, CROPU, DISSABS, DDFB, DDFU, DGENE, DRUGB, DRUGMONOG2, ...' ENTERED AT 13:39:55 ON 11 FEB 2004

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From: Steadman, David (AU1652)
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NAME: David Steadman
AU: 1652
Date:12/12/03
Office: 10D-04
Mailbox: 10D-01

Please search the following sequences in commercial and pending databases:

1) Standard search of nucleotides 398-1864 of SEQ ID NO:1 against nucleic acid databases.

2) Standard search of SEQ ID NO:2 against nucleic acid databases.

Please align the following sequences:

3) SEQ ID NO:2 against SEQ ID NO:4

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Patent Examiner
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